

Amendments to the Claims

The following Listing of Claims replaces all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (currently amended): A system for managing a plurality of distributed nodes of a network, comprising:

a memory storing computer-readable instructions; and

a processor coupled to the memory, operable to execute the instructions, and based at least in part on the execution of the instructions operable to perform operations comprising executing a network management module that launches causes the processor to launch migratory recovery modules into the network to monitor status of each of the network nodes;

wherein each of the recovery modules is configured to: cause any given one of the network nodes to migrate the network node from one the given network node to another one of the network nodes; cause any given one of the network nodes to determine a respective status of each of the given network nodes to which it has migrated; and cause any given one of the network nodes to initiate a recovery process on ones of the given network nodes node in response to a determination that the given network node has having one or more failed node processes;

wherein in the executing the network management module causes the processor to launch the recovery modules in order to determine the status of each of the network nodes; and

wherein in the executing the network management module causes the processor to monitor monitors transmissions that are received from the recovery modules executing on respective ones of the network nodes in order to provide periodic monitoring of the status of each of the network nodes.

Claim 2 (currently amended): The system of claim 1, wherein at least one of the recovery modules comprises a respective routing component for determining that is executable by a given one of the network nodes to cause the given network node determine

next hop addresses for migrating the recovery module from ~~an origin~~the given network node to a series of successive destination network nodes.

Claim 3 (currently amended): The system of claim 2, wherein the routing component is ~~configured executable by the given network node to cause the given network node to~~ determine the next hop addresses based upon a routing table stored at the ~~origin~~given network node.

Claim 4 (currently amended): The system of claim 1, wherein at least one of the recovery modules is ~~configured executable by a given one of the network nodes to cause the given network node to~~ determine the status of ~~a~~the given network node by sending an inter-process communication to a node process ~~executing on the given network node~~.

Claim 5 (currently amended): A system for managing a plurality of distributed nodes of a network, comprising:

first and second ones of the network nodes;

wherein

the first network node is operable to execute a recovery module ~~configured that~~ causes the first network node to migrate the recovery module from ~~an~~the first network node to the second network node~~another, and~~

in response to receipt of the recovery module from the first network node, the recovery module causes the second network node to determine a status of ~~a~~the second network node in accordance with a heartbeat messaging protocol, and

in response to a determination that the second network node has one or more failed processes, the recovery module causes the second network node to initiate a recovery process on ~~a~~the second network node having one or more failed node processes, wherein the recovery module is configured to determine the status of a network node in accordance with a heartbeat messaging protocol.

Claim 6 (currently amended): The system of claim 1, wherein each of the recovery modules is executable by a given one of the network nodes to cause the given network node to perform operations comprising:

determining whether the given network node has one or more failed processes; and
in response to a determination that the given network node has a failed process,
initiating~~configured to initiate~~ a recovery process on ~~a~~the given network node ~~having one or~~
~~more failed node processes~~ in accordance with a restart protocol.

Claim 7 (currently amended): The system of claim 6, wherein each of the recovery modules is executable by the given network node to cause to given network node to respond to a determination that the given network node has a failed process by initiating~~configured to~~ initiate a restart of~~a~~the failed node process by transmitting a request to a process execution service operating on the failed~~given~~ network node.

Claim 8 (currently amended): The system of claim 1, wherein each of the recovery modules is executable by a given one of the network nodes to cause the given network node configured to transmit a respective node status message to the network management module.

Claim 9 (previously presented): The system of claim 8, wherein each of the node status messages comprises information obtained from a respective log file generated at a respective one of the network nodes having one or more failed node processes.

Claim 10 (canceled)

Claim 11 (previously presented): A method for managing a plurality of distributed nodes of a network, comprising:

- (a) on a current one of the network nodes, determining a status of the current network node;
- (b) in response to a determination that the current network node has one or more failed node processes, initiating a recovery process on the current network node;
- (c) after initiating the recovery process, migrating from the current network node to a successive one of the network nodes; and

(d) repeating (a), (b), and (c) with the current network node corresponding to the successive network node for each of the nodes in the network.

Claim 12 (original): The method of claim 11, wherein migrating from one network node to another comprises determining a next hop address from an origin network node to a destination network node.

Claim 13 (original): The method of claim 12, wherein the next hop address is determined based upon a routing table stored at the origin network node.

Claim 14 (original): The method of claim 11, wherein the status of a network node is determined by sending an inter-process communication to a node process.

Claim 15 (original): The method of claim 11, wherein the status of a network node is determined in accordance with a heartbeat messaging protocol.

Claim 16 (previously presented): The method of claim 11, wherein a recovery process is initiated on a network node having one or more failed node processes in accordance with a restart protocol.

Claim 17 (original): The method of claim 16, wherein a restart of a failed node process is initiated by transmitting a request to a process execution service operating on the failed network node.

Claim 18 (original): The method of claim 11, further comprising transmitting a node status message to a network management module operating at a network management network node.

Claim 19 (previously presented): The method of claim 11, further comprising launching ~~into the network~~ a plurality of recovery modules from a respective one of the network nodes into the network, wherein each of the recovery modules is configured to migrate from one recipient one of the network nodes to another; cause each of the recipient

network nodes to determine the status of itself ~~network node~~; and cause each of the ~~recipient network nodes~~ ~~initiate a recovery process on a failed network node~~ having one or more failed node processes to initiate a recovery process on itself.

Claim 20 (currently amended): A computer-readable medium comprising a computer program for managing a plurality of distributed nodes of a network, the computer program ~~residing on a computer-readable medium and comprising computer-readable instructions that~~ when executed by respective processors for causing a computer, cause the respective processors to perform operations a method comprising:

migrating the computer program from one network node to a series of successive network nodes;

determining a status of a current one of the network nodes to which the computer program has migrated;

in response to a determination that the current network has one or more failed node processes, initiating a recovery process on the current network node; and

after initiating the recovery process on the current network node, migrating from the current network node to a successive one of the network nodes.

Claim 21 (currently amended): The system of claim 1, wherein each of the recovery modules is a software object that is instantiatable by a respective operating environment on each of the ~~network nodes~~.

Claim 22 (currently amended): The computer-readable medium system of claim 21, wherein the operating environment on each of the network nodes provides each of the recovery modules with access to status monitoring resources, recovery resources, and native operative system resources that are available at each of the network nodes.

Claim 23 (currently amended): The system of claim 1, wherein, upon migrating from a first one of the network nodes to a second one of the network nodes and being instantiated on the second network node, ~~each a given one of the recovery modules causes the second~~ network node to determine ~~determines~~ a status of the second network node.

Claim 24 (currently amended): The system of claim 23, wherein ~~each of the recovery modules initiates the given recovery module causes the second network node to initiate the~~ recovery process on the second network node in response to a determination that the second network node has one or more failed node processes.

Claim 25 (currently amended): The system of claim 23, wherein ~~each of the given recovery module modules is configured to cause the second network node to migrate the given recovery module~~ to a third one of the network nodes after determining the status of the second network node.

Claim 26 (canceled)

Claim 27 (currently amended): The system of claim 1, wherein the network management module ~~determines causes the processor to determine~~ a number of the recovery modules needed to achieve a specified network monitoring service level, and ~~launches to launch~~ the determined number of recovery modules into the network to achieve the specified network monitoring service level.

Claim 28 (currently amended): The system of claim 1, wherein the network management module ~~causes the processor to statistically identifies identify~~ target ones of the network nodes ~~that are needed~~ to achieve a specified confidence level of network monitoring reliability, and ~~the network management module causes the processor to launch launches~~ the recovery modules into the network by transmitting respective ones of the recovery modules to the identified target network nodes.

Claim 29 (currently amended): The method of claim 11, further comprising ~~on a respective one of the network nodes~~:

determining a number of the recovery modules needed to achieve a specified network monitoring service level;

statistically identifying target ones of the network nodes to achieve a specified confidence level of network monitoring reliability; and

transmitting the determined number of the recovery modules to the identified target network nodes.

Claim 30 (currently amended): The system of claim 1, wherein in the executing, the network management module causes the processor to monitor~~monitors~~ number of network node failures reported by the recovery modules and causes the processor to launch~~launches~~ more of the migratory recovery modules into the network as the number of reported failures increases.